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Технические характеристики Фотоэлектрические датчики

НР 100, НР200, НР300

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Catalog listings

Detection method	Scanning distance	Configuration	L-ON/D-ON selection	Sensitivity adjustment	Wiring method	Cable length	Power supply	Output mode	Catalog listing			
Thru-scan	15 m		●	●	Preleaded	2 m	10 to 30V DC	NPN open collector	HP100-T1			
			●	●		5 m			HP100-T1-L05			
			●	●		50 cm			HP100-T1-LP5			
			●	●		M12 preleaded connector			30 cm	HP100-T1-CN03		
			●	●		50 cm			HP100-T1-CN05			
			●	●		1 m			HP100-T1-CN1			
			●	●	M8 connector	1 m			HP100-T1-CT			
			●	●	Preleaded	2 m			PNP open collector	HP100-T2		
			●	●		5 m				HP100-T2-L05		
			●	●		50 cm				HP100-T2-LP5		
			●	●		M12 preleaded connector				30 cm	HP100-T2-CN03	
			●	●		50 cm				HP100-T2-CN05		
●	●	1 m	HP100-T2-CN1									
●	●	M8 connector	1 m	HP100-T2-CT								
Polarized retroreflective	5 m (when used with FE-RR8 or FE-RR17 or FE-RR21)		●	●	Preleaded	2 m		10 to 30V DC		NPN open collector	HP100-P1	
			●	●		5 m					HP100-P1-L05	
			●	●		50 cm					HP100-P1-LP5	
			●	●		M12 preleaded connector					30 cm	HP100-P1-CN03
			●	●		50 cm					HP100-P1-CN05	
			●	●		1 m			HP100-P1-CN1			
			●	●	M8 connector	1 m			HP100-P1-CT			
			●	●	Preleaded	2 m			PNP open collector		HP100-P2	
			●	●		5 m					HP100-P2-L05	
			●	●		50 cm					HP100-P2-LP5	
			●	●		M12 preleaded connector	30 cm				HP100-P2-CN03	
			●	●		50 cm	HP100-P2-CN05					
●	●	1 m	HP100-P2-CN1									
●	●	M8 connector	1 m	HP100-P2-CT								
Diffuse-scan	1 m		●	●	Preleaded	2 m	10 to 30V DC			NPN open collector	HP100-A1	
			●	●		5 m					HP100-A1-L05	
			●	●		50 cm					HP100-A1-LP5	
			●	●		M12 preleaded connector					30 cm	HP100-A1-CN03
			●	●		50 cm					HP100-A1-CN05	
			●	●		1 m			HP100-A1-CN1			
			●	●	M8 connector	1 m			HP100-A1-CT			
			●	●	Preleaded	2 m			PNP open collector		HP100-A2	
			●	●		5 m					HP100-A2-L05	
			●	●		50 cm					HP100-A2-LP5	
			●	●		M12 preleaded connector		30 cm			HP100-A2-CN03	
			●	●		50 cm		HP100-A2-CN05				
●	●	1 m	HP100-A2-CN1									
●	●	M8 connector	1 m	HP100-A2-CT								

Specifications

Catalog listing	HP100-P1	HP100-P2	HP100-T1	HP100-T2	HP100-A1	HP100-A2
Detection method	Polarized retroreflective*2		Thru-scan		Diffuse-scan	
Power supply	10 to 30V DC (ripple 10% max.)					
Power consumption	13 mA max.		HP100-E1: 16 mA max., HP100-R□: 11 mA max.		16 mA max.	
Scanning distance	0.05 to 5 m (with FE-RR8, FE-RR17, or FE-RR21 reflector)		15 m		1 m	
Target object	Opaque object 80 mm dia. min (with FE-RR8, FE-RR17, or FE-RR21 reflector)		Opaque object 9 mm dia. min.		—	
Standard target object	—		—		300 x 300 mm white paper (Kodak 90% reflective paper)	
Scanning angle	Body: 0.5 to 10°. Reflector: 30° min.		2 to 20°		—	
Differential travel	—		—		20% max. (at rated scanning distance)	
Operation mode	Light-ON / Dark-ON selectable by switch					
Output mode*1	HP100-□□1: NPN open collector, HP100-□□2: PNP open collector					
Control output	Switching current: 100 mA (resistive load). Output dielectric strength: 30V. Voltage drop: 3V max. (at 100 mA switching current). Short-circuit protection.					
Response time	500 μs max. for both operation and recovery					
Emitter	Red LED		Red LED		Infrared LED	
Indicator	Indicators other than thru-scan emitter: orange when output ON, and green at stable light-ON and light-OFF. Thru-scan emitter: orange light on power supply indicator. Thru-scan receiver: light-operated red indicator on front of unit.					
Ambient light immunity	Incandescent lamp: 10,000 lux max. Sunlight: 40,000 lux max.					
Operating temperature	-30 to +60°C (without freezing or condensation)					
Operating humidity	35 to 85% RH (without freezing or condensation)					
Storage temperature	-40 to +70°C (without freezing or condensation)					
Insulation resistance	20 MΩ min. (at 500V DC)					
Dielectric strength	1,000Vac 50/60Hz for one minute between electrically live metal and case					
Vibration resistance	10 to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours each in X, Y, and Z directions					
Shock resistance	500 m/s ² 10 times each in X, Y and Z directions					
Protective structure	IP67 (IEC standard)					
Wiring method	HP100-□□-LP5: preleaded (0.5 m), HP100-□□: preleaded (2 m), HP100-□□-L05: preleaded (5 m), HP100-□□-CN03: M12 preleaded connector (0.3 m), HP100-□□-CN05: M12 preleaded connector (0.5 m), HP100-□□-CN1: M12 preleaded connector (1 m), HP100-□□-CT: M8 connector					
Weight	Approx. 55 g (body with 2 m cable only)					
Circuit protection	Power ON malfunction prevention circuit (approx. 8 ms), wiring error protection					

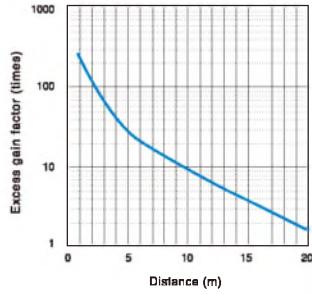
Accessories

Name	Configuration	Description	Catalog listing	Compatible model
Reflector for polarized retroreflective model		Reflector size 37 mm x 56 mm	FE-RR21 (Scanning distance 5 m)	HP100-P□
		Reflector size 47 mm x 47 mm	FE-RR8 (Scanning distance 5 m)	HP100-P□
		Reflector size 47 mm x 47 mm	FE-RR17 (Scanning distance 5 m)	HP100-P□
		Reflector size 30.8 mm x 30.8 mm	FE-RR15 (Scanning distance 3.5 m)	HP100-P□
		Reflector size 30.8 mm x 30.8 mm	FE-RR18 (Scanning distance 3.5 m)	HP100-P□
		Reflector size 8.6 mm x 29.5 mm	FE-RR20 (Scanning distance 2 m)	HP100-P□
Standard bracket		For HP100/HP300 Bottom-mounting L-bracket (material: SUS)	HP100-B01	All models
		For HP100/HP300 Rear-mounting L-bracket (material: SUS)	HP100-B04	All models
		For HP100/HP300 Bottom-mounting L-bracket (8 mm mounting holes, SUS, angle adjustable by 10°)	HP100-B07	All models
		For HP100/HP300 Rear-mounting L-bracket (8 mm mounting holes, SUS, angle adjustable by 10°)	HP100-B06	All models
Wraparound mounting bracket		For HP100/HP300 Wraparound vertical mounting bracket (material: SUS)	HP100-B02	All models
		For HP100/HP300 Wraparound horizontal mounting bracket (material: SUS)	HP100-B03	All models
Slit for thru-scan model		For HP100/HP300 Vertical slit (0.5 mm / 1 mm / 1.5 mm / 2 mm)	HP100-SV05 / SV10 / SV15 / SV20	HP100-T□
		For HP100/HP300 Horizontal slit (0.5 mm / 1 mm / 1.5 mm / 2 mm)	HP100-SH05 / SH10 / SH15 / SH20	HP100-T□
Mutual interference protection filter for thru-scan model		For HP100/HP300 Mutual interference can be prevented by changing the polarizing direction of 2 adjacent emitter-receiver pairs	HP100-U01	HP100-T□

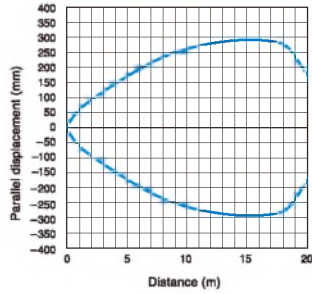
Characteristics diagrams (typical examples)

Thru-scan models (HP100-T□)

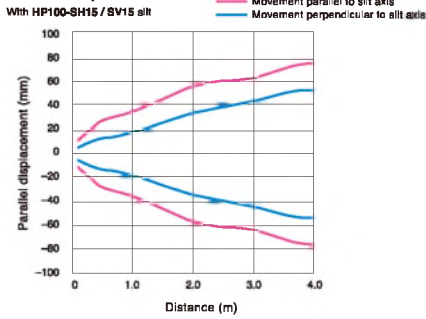
Excess gain
(light received over the required amount)



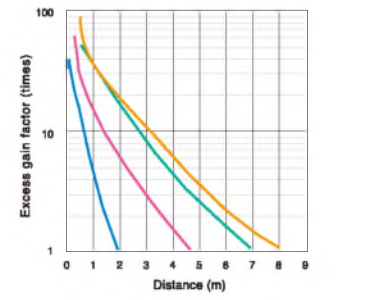
Parallel displacement



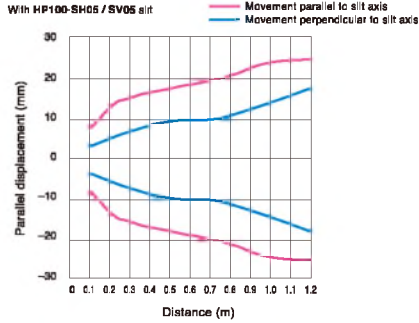
Parallel displacement



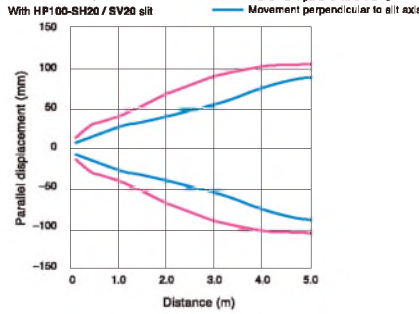
Excess gain
(light received over the required amount)
With HP100-SH / SV silt



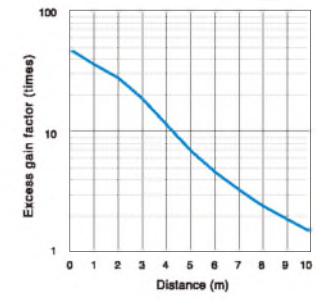
Parallel displacement



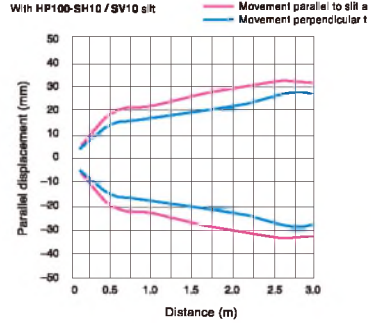
Parallel displacement



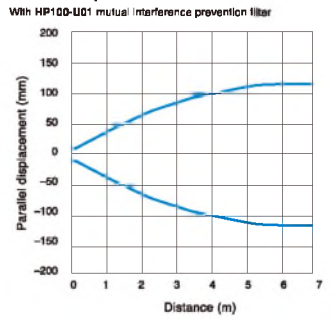
Excess gain
(light received over the required amount)
With HP-100-L01 mutual interference prevention filter



Parallel displacement

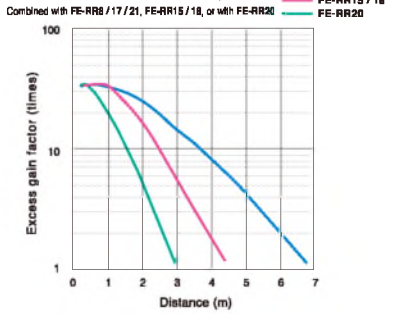


Parallel displacement

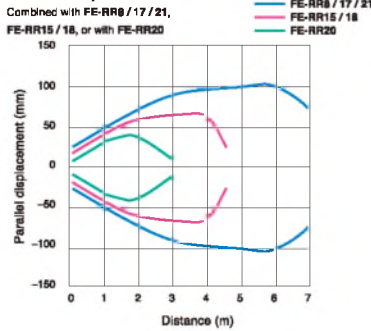


Polarized retroreflective models (HP100-P□)

Excess gain
(light received over the required amount)

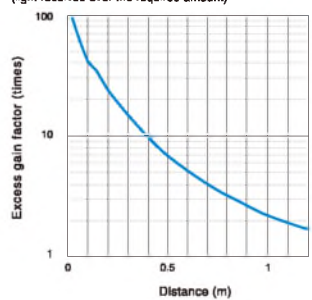


Parallel displacement

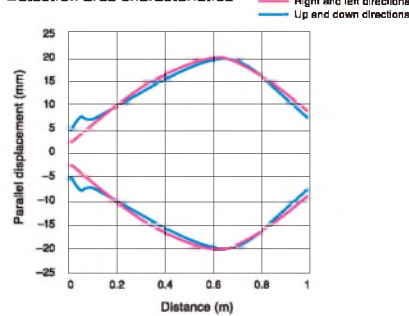


Diffuse-scan models (HP100-A□)

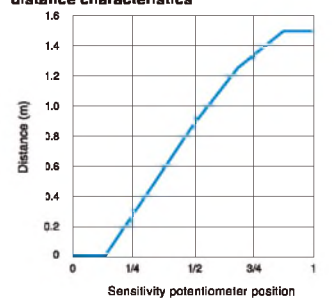
Excess gain
(light received over the required amount)



Detection area characteristics



Potentiometer angle vs. scanning distance characteristics



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